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The role of endoscopy in nasogastric tube removal following esophageal surgery: A case report

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Esophageal resection;
Esophageal complication;
Endoscopic complication management

Case presentation

An 88-year-old female was transferred to the intensive care unit (ICU) following a complicated hospital course. She had originally presented to the emergency room with abdominal pain attributed to a mesenteroaxial gastric volvulus with a large hiatal hernia. She was taken to the operating room (OR) where her paraesophageal hernia was repaired and gastropexy performed.

On postoperative day 2 she started to complain of substernal chest pain, odynophagia accompanied with tachycardia and tachypnea. A computed tomography (CT) scan was obtained immediately (Fig. 1) which revealed pneumomedistinum, herniated hollow viscus into the chest and free air suggesting a perforation. She was taken emergently back to the OR where a posterior esophageal perforation was found. A distal esophagectomy, gastrostomy, feeding jejunostomy and wide mediastinal drainage were performed. The patient was taken to the ICU for aggressive resuscitation.

Five days following her second operation the patient was taken to the OR for restoration of the upper gastrointestinal tract. She underwent a left thoracotomy and esophagogastrostomy with the anastomosis constructed over an NG tube. The indwelling NG tube was left in place during her

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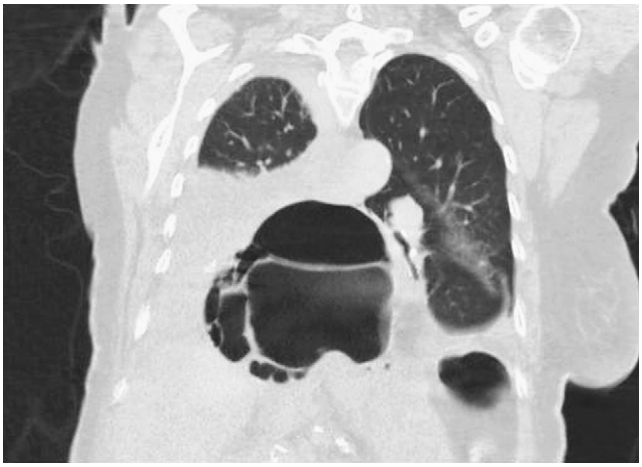

Figure 1 CT scan of the thorax, coronal views, depicting an air fluid level and free air in the posterior mediastinum.

postoperative course. Seven days later the decision was made to remove the NG tube. The NG tube was withdrawn 2 cm when resistance was encountered. Although the patient did not complain of increased pain the tube was left intact, unable to be removed.

The patient underwent an EGD which revealed the NG tube was circumferentially sutured to the esophageal wall at the repaired esophagogastric (EG) junction (Fig. 2). The suture was successfully cut and the NG tube was removed with ease (Fig. 3). The patient tolerated the procedure well and was returned to the ICU without complications.

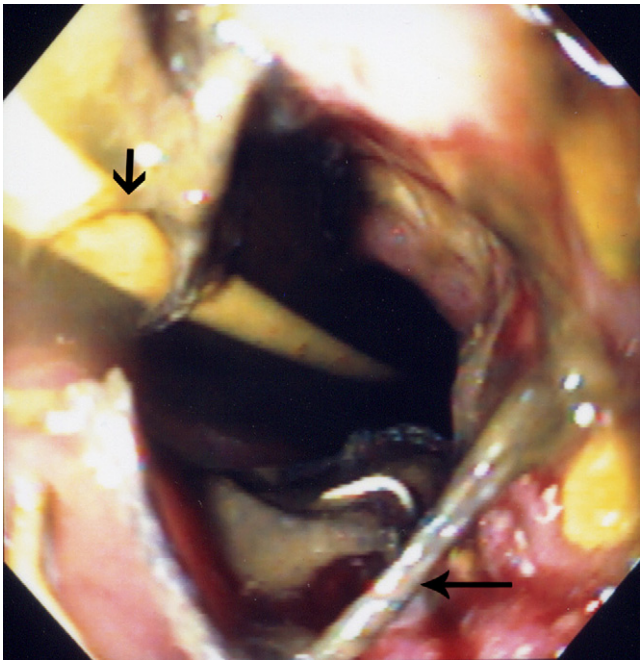

Figure 2 Endoscopic view of the esophagus showing NG tube (large arrow) with a circumferential suture at the vicinity of the suture line (small arrow).

Figure 3 Endoscopic view of the esophagus following removal of the suture and NG tube.

Her remaining clinical course was essentially uncomplicated. She was transferred to the floor and eventually to the rehabilitation unit.

Management

Management of a sutured NG tube begins with prompt recognition of the problem. Should resistance be encountered during removal of an NG tube, especially following foregut surgery, the process should be immediately terminated.

EGD should promptly follow. With the patient in the endoscopy suite, the surgeon, or gastroenterologist, is able to visualize and identify the problem and location. Placing the scope immediately proximal and adjacent to the overlying suture allows advancement of a cutting device through the scope to cut and remove the stitch. The NG tube should then be gradually removed, with the anastomosis inspected to ensure the integrity is not compromised.

Discussion

Nasogastric tube placement following repair of the esophagus is common in surgical and medical practice. There exist many proponents for postoperative NG tube use particularly in obesity and foregut surgery. Little is documented in the literature pertaining to complications from NG tubes. Pharyngitis, sinusitis or tube obstruction are the most common adverse effects reported from indwelling NG tubes.[1,2] Knotting of the NG tube is another potential complication and although is more prevalent in smaller feeding tubes, large caliber sump tubes are not exempt from this complication.[3,4]

One devastating complication is the development of nasogastric tube syndrome. This potentially life threatening complication of indwelling NG tubes was extensively reviewed by Apostolakis et al.[5] Prolonged tube placement eroded the posterior cricoid impairing vocal cord abduction. This complication manifested as significant airway compromise necessitating immediate medical attention with an emergent tracheostomy. The predominant etiology of posterior cricoid compromise was attributed to ulceration or infection from prolonged NG tube utilization.[5] Laryngeal abductor muscle ischemia stemming from compromise of the postcricoid blood supply has also been surmised as the etiology of airway compromise.[6]

Our patient had a long standing NG tube following reconstitution of the esophagus. Subsequent EGD revealed the NG tube was circumferentially sutured to the left lateral wall. During reinforcement of the suture line, the NG tube was enveloped, adhering the tube to the lateral esophageal wall.

We advocate the use of EGD to evaluate NG tube positioning should resistance be encountered during removal. EGD allows direct visualization should any pertinent pathology exist. The manipulation of the esophagus and stomach is common in thoracic, foregut, and obesity surgery. Postoperatively an NG tube is often left in place. The tube is usually easily removed; however, it is imperative that should any resistance be encountered the tube should be left intact and an EGD is recommended. Aggressive removal may facilitate suture line disruption or even tear the proximal stomach, stomach remnant or esophagus. EGD has been reported to successfully reduce knots, and now to manage iatrogenic complications.[4] We underscore the importance of direct visualization for NG tube removal particularly if it is adhered to the lateral esophageal wall especially since the procedure is simple yet highly efficacious.

Conflict of interest
None.

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